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ABSTRACT

This study examined psychological, behavioral, environmental, and sociodemographic predictors of health status in 87 mid-life women participating in a longitudinal investigation. Correlates of good health were found to be an optimistic disposition, internal locus of control, education, income, employment outside the home, moderate exercise, and adequate sleep. Variables negatively related to health were stress, external locus of control, packyears of smoking, post-menopausal status, body mass index, and anger symptomatology. Age and social support variables were not related to health status, nor were the anger-in, anger-out, and anger-discuss modes of expressing anger. The regression model accounted for 56% of the variance in health status. The majority of subjects reported severe daily hassles. High stress and anger somatization were significantly correlated. The findings suggest that a segment of women in mid-life enjoy less than optimal health while experiencing high levels of stress and expressing anger in ways which not only fail to accomplish problem resolution, but which also may alienate significant others. These results have implications for counseling and for future research. References and tables are included. (Author/NB)

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Anger Symptomatology, Stress Reactivity and Health Status of Mid-life Women

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Abstract:

Psychological, behavioral, environmental and sociodemographic predictors of health status were examined in a sample of mid-life women participating in a longitudinal investigation which had its genesis with data collection at the 1982 World's Fair and a metropolitan hospital in Tennessee. Correlates of good health were optimistic disposition, internal locus of control, education, income, employment outside the home, moderate exercise and sleeping 7-8 hours per night. Variables negatively related to health were stress (measured both in terms of major life change and in terms of frequency and severity of daily hassles), external locus of control beliefs, packyears of smoking, post-menopausal status, body mass index, and anger symptomatology (physiologic expression of anger, as assessed by the Framingham Anger Symptoms Scale). Age and social support variables were not related to health status, nor were the anger-in, anger-out, and anger-discuss modes of expressing anger. The regression model accounted for 56% of the variance in health status.

Because physiologic expression of anger (i.e., headache, weakness, shakiness) was the only mode of anger expression significantly related to poorer health, this phenomenon was examined more closely. Correlational analyses revealed that anger symptoms were related to loss of an important relationship in the past year and inversely related to several other social support variables (affect, affirmation and aid from significant others). Contrary to previous studies indicating that suppressed anger is the more harmful form, women high in anger symptoms also directed their anger outward. They tended to blame others and to take their anger out on others.

The majority (66%) of mid-life women in this sample reported severe daily hassles. Of those women experiencing high stress in terms of daily hassles, most (59%) were also experiencing stress in terms of major life change. High stress and anger somatization were significantly correlated.

Causal inferences cannot be drawn from this descriptive-correlational study. However, a segment of women in mid-life enjoy less than optimal health while experiencing high levels of stress and expressing anger in ways which not only fail to accomplish problem resolution but also may alienate significant others. Implications for counseling and for future research are discussed.

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Anger Symptomatology, Stress Reactivity and Health Status of Mid-life Women

McElmurry and Zabrocki (1988) asserted that "at any one time, a woman is a mosaic fashioned from all her previous and current lived experiences" (p. 163). The present study was based on the assumption that a woman's psychological and physical wellness in later adulthood is determined in part by her health-promoting attitudes and behaviors during earlier life. More specifically, it was assumed that successful passage through the mid-life transition (termed "the perilous bridge" by Golan in 1986) may be an important element of the mosaic. As the life expectancy of American women (77.3 years according to DeLorey, 1984) continues to increase, the quality of the lengthened lifespan becomes increasingly important.

Middle adulthood has been neglected as an area of theoretical and empirical examination until the 1960's and 1970's, despite earlier recognition as a crucial period of development by such eminent figures as Jung and Erikson. Mid-life has been characterized as a time of evaluation and psychological upheaval (Jung, 1954), altered time perspective (Neugarten, 1968), and undeniable physiological changes. The developmental task of mid-life, as defined by Erikson (1968), is generativity, the nurturance and guidance of one's children (or social contributions by childless individuals). However, Sheehy (1976) and Gilligan (1979) have disputed the applicability of Erikson's formulation to women. Sheehy stated, "Yet once again, the male life cycle is presented as the adult life cycle. Overlooked is the fact that serving others is what most women have been doing all along" (Sheehy, 1976, p. 345).

Mid-life women may, in fact, experience significant stress due to their involvement in serving others. Rossi (1980) noted the stress inherent in parenting teenagers, while Brody (1982) pointed out the concomitant duties

of caring for elderly relatives. Bernardy (1987) stated that "Of the eight million Americans who provide some level of care to an elderly relative or friend, most are daughters; their average age is 46" (p. 4). The burdens of this caregiving may produce considerable suppressed anger and fatigue.

Other stresses for mid-life women include (a) adjustment to the menopause, which may be hampered by inadequate information and physicians' negative views of menopause as a disease process (MacPherson, 1981); (b) losses of important supportive relationships (through death, divorce, or children leaving home); and (c) declining health status, which may be related to negative life changes (Engel, 1987). The stressors of middle adulthood, if not resolved satisfactorily, may lead to consequences such as substance abuse or depression. Symptoms of depression are more common in women and have been shown to be related to age (Rodeheaver & Datan, 1988). Although generally men drink more and report more drinking problems than women, Wilsnack (1986) found that women's drinking levels were comparable to men's in the mid-life age group (i.e., ages 35-49). Further, Johnson (1982) found female drinkers in the 35-49 age group had the highest risk of problem drinking, especially if they had lost key family roles (e.g., through divorce). Thus, drinking behaviors adopted in middle age could compromise health in the senior years. It is already known that older women take sedatives, tranquillizers, hypnotics, analgesics and other drugs at a rate 2.5 times that of older men (Public Health Service Report on Women's Health Issues, 1985).

Predictors of good health/well-being in mid-life women have not been given sufficient attention. Bayer et al. (1981) found that more than 80% of participants in their longitudinal study considered themselves in good-to-excellent health throughout the middle years. Psychological variables such as an optimistic disposition or internal locus of control may be important to consider. Although the cumulative effects of stress and

deleterious behaviors (unhealthy diet, lack of exercise) are beginning to accrue for mid-life women, sufficient time remains for attitudinal and life-style modifications which could prolong their lives and enhance the quality of their remaining years. Riddick (1985), in a survey of older women involving a nationally representative sample of 1200 women age 65 or over, found that health status was directly related to their life satisfaction, whether the women were homemakers, workers or retirees.

The purpose of the present study was to examine predictors of health status in mid-life women. A comprehensive model of women's health in middle adulthood will be useful to gerontologists. Such a model must include established predictors of health as well as variables which have not been explored previously. Using a deductive approach, psychological, behavioral, environmental and sociodemographic variables were selected. Literature pertinent to each of these variables is reviewed in the following section.

Review of Literature

Previous research on women's health

Virtually all studies show that women, despite their greater longevity report more health problems than men. Women are the consumers most dependent on medical services, reporting more acute conditions and having higher prevalence of chronic disease (Lempert, 1986). Women report more physician visits and hospitalizations (Aday & Eichhorn, 1972). Women restrict their activities for health problems about 25% more days each year than men do, and they spend about 40% more days in bed per year on the average (Verbrugge, 1985). "Rarely sick" individuals in a study by Burchfield et al. (1981) were significantly more likely to be male, while "sick" individuals were more likely to be female. A plethora of reasons for these findings may be found in the literature, such as women's greater somatic awareness and propensity to seek treatment.

Nathanson (1977) proposed that sex differences in health status are largely social and psychological in origin. Verbrugge (1985) proposed that "learned helplessness" is more typical for women. Stereotypes about the health-related consequences of women's social roles abound: e.g., the "neurotic housewife" who develops hypochondriacal complaints and the "career woman" who succumbs to the stressors of the work world. However, Depner (1981) found that role status usually has no significant effect on health when variables such as age, education and income are entered first into the regression equation. Further, there is no empirical evidence that enactment of multiple roles impairs women's health, as alleged in the burgeoning literature on "superwomen" who juggle work, motherhood, community service and household chores. Verbrugge (1985) noted that the worsening health profile for American women is concentrated among those with few roles (nonemployed, nonmarried), whereas employed married women have had stable or improving health in the past two decades.

Health of mid-life women

Engel (1987) examined stress (defined in terms of current life change), attitude toward women's roles (traditional vs. modern), menopausal stage (pre-, peri-, or post-menopausal), and perceived health status in 249 women 40-55 years of age (mean age 47). Stress, as predicted, was inversely related to health, with negative life changes having greater impact than positive life changes. Although the investigator had hypothesized improved health perception with progression through menopause, this hypothesis was not supported. Attitudes toward women's roles were unrelated to health. Only 15% of the variance in health status was explained by the variables in Engel's model. A limitation of the study was the homogeneity of the sample.

Duffy (1988) included health status among several determinants of health promoting behaviors in a sample of 262 mid-life women between 35 and 65 years of age. Health status, health worry/concerns, self-esteem and post-high-school education were significantly related to likelihood of engaging in health-promoting life-style activities. Additionally, chance locus of control (belief in fate, luck or chance determining one's health) was negatively related to health practices, while internal health locus of control (belief in personal control of health outcomes) was positively related. The proportion of variance in health promotion activities explained by this combination of variables was 25%. The author concluded that her study provided partial support of Pender's (1982) health promotion model. Limitations of this study include the response rate of 44% and the lack of diversity of the sample (affluent, 80% college-educated, 64% in faculty positions).

Stress and health

The relationship of stressful life events and illness was established in the pioneering research of Holmes and Rahe (1967), although correlations are often modest and intervening variables are frequently overlooked. Early studies defined stress in terms of major life changes, although assessment of daily hassles (minor irritants and frustrations) was later found to be a better approach to stress measurement in middle-aged subjects (Kanner, Coyne, Schaefer & Lazarus, 1981). Lazarus and Folkman (1984) emphasized that stress involved a relationship between the person and his or her environment, but researchers have given far more attention to external environmental events than to individual personality factors affecting appraisal of stress and responsivity to stress.

Barnett, Biener and Baruch (1987) pointed out that gender has been neglected in research on stress and that most studies have examined males. Kessler and McLeod (1984) found that for women, stress is not only due to

the number of events occurring in their own lives but also what is happening to those about whom they care. In a sample of 153 women ages 30-65 (half rural, half urban), stress related to family and friendship matters was most significant, followed by job-related stress. Poor health also predicted stress (Mansfield, Preston, & Crawford, 1988).

Verbrugge (1985) noted that contemporary women feel more daily and long-term emotional distress, are less happy about life and less satisfied with their roles than are men. In addition to caregiving responsibilities, women frequently hold jobs that are both highly demanding and low in autonomy and control. Such jobs are more likely to be associated with cardiovascular risk and other health problems than are high-level managerial and professional positions involving greater autonomy (Karasek, Schwartz, & Theorell, 1982).

Anger and health

It is reasonable to presume that there may be a linkage between women's stress and anger. Novaco (1985) proposed that "chronic anger reaction patterns represent a learned style of coping with stressful life demands" (p. 205). Anger is pathogenic for numerous diseases (Appel, Holroyd, & Gorkin, 1983), including coronary heart disease, arthritis and asthma (Friedman & Booth-Kewley, 1987). Suppressed anger has been considered the more lethal form (Scherwitz, 1985), and there is some evidence that women are more likely than men to suppress anger (Haynes et al., 1978).

Despite heightened interest in the phenomenon of anger following publications of Tavris (1982) and Lerner (1985), there has been little research on women's anger and its health-related consequences. In a recent review of the research on health consequences of hostility, the authors noted that male samples had been used almost exclusively and studies of female subjects were needed (Williams, Barefoot, & Shekelle, 1985).

A 1961 study showed that female undergraduates classified as prehypertensive on the basis of elevated blood pressures were unable to appropriately express hostility, which became internalized and reflected in anxiety, muscle tension and emotional reactivity (Kalis, Harris, Bennett, & Sokolow). Greer and Morris (1975) examined psychological attributes of women who developed breast cancer, finding a significant difference only in the handling of emotions, particularly anger. Both "extreme suppressors" (those who had not openly shown anger more than once or twice in their lives) and "exploders" (those who had frequent temper outbursts) had higher rates of diagnosed breast cancer than women with normal emotional response patterns. Solomon (1985) found that women with rheumatoid arthritis showed more denial of hostility and subservience than did their healthy sisters. In the well-known Framingham Study, two of the strongest psychosocial predictors of coronary heart disease (CHD) among middle-aged working women were suppressed hostility and Type A behavior (Haynes, Feinleib, & Kannel, 1980). Somatization of anger (physiologic response such as headache when angry) was more characteristic of middle-aged women with angina and CHD than women who were free of disease (Haynes et al., 1978).

Social support networks and health

Ornstein and Sobel (1987) proposed that solid, stable connections to a larger social group may result in improved resistance to disease, and conversely the disruption of important relationships often results in morbidity and mortality in the bereaved. Social network researchers have been aggregated in two "camps," one contending that social networks exert a direct effect on reducing physical symptoms and one asserting that social ties also act to reduce symptoms by buffering the effects of stress (Cohen, Teresi, & Holmes, 1985). A support network could also provide encouragement regarding health-promoting behaviors. Blake, Roberts, Mackey and Hosokawa (1980) found that clients with low social support had a higher utilization

rate of professional services in a primary care clinic. The frequently cited study of Berkman and Syme (1979) found that subjects with few ties to other people had higher mortality rates than those with greater social connectedness. However, in replications of Berkman and Syme's work, gender differences were noted; the relationship between social ties and mortality rates was statistically significant only for men (Minkler, 1986).

In the Tecumseh Community Health Study, composite indices of social relationships and activities were inversely associated with mortality, but associations were stronger for males than for females. The researchers concluded that men may benefit more from social relationships than women (House, Landis, & Umberson, 1988). Turkington (1985) pointed out that there may not be reciprocity within supportive relationships, and that costs may exceed benefits for women. In a recent study by Rook (1987), reciprocity of social exchange was related to social satisfaction among older women.

Locus of control and health

Locus of control is a construct from Rotter's (1954) social learning theory. The reinforcement patterns to which individuals are exposed eventually produce either a general expectancy that reinforcements are contingent upon one's own behavior (internal locus) or a general expectancy that reinforcements are received on a purely random basis (chance locus) or dispensed by powerful others such as doctors (powerful others locus of control). It logically follows that individuals with an internal locus of control are more likely to engage in positive health behaviors; they believe that the reinforcement (good health) is directly the result of their own behavior. The research on locus of control and health behaviors such as weight reduction, smoking cessation and exercise has been reviewed by Strickland (1978) and by Wallston and Wallston (1978); internal locus of control was positively correlated both precautionary health practices and with health information-seeking in the majority of studies reviewed.

Optimism and health

Scheier and Carver (1985) assert that optimism is a stable personality characteristic that has important implications for the manner in which people regulate their actions, in particular actions relevant to their health. Optimism could cause individuals to be more persistent in working toward health goals or to take steps to deal with problems more definitively and promptly. Scheier and Carver found that undergraduate students who initially reported being highly optimistic were less likely to report being bothered by common physical symptoms such as dizziness, muscle soreness, and fatigue over the course of a four-week period than were subjects who had initially reported being less optimistic. The influence of optimism on health in middle adulthood has not been investigated previously.

Health habits

The large Alameda County longitudinal study examined the relationship of health practices to subsequent mortality. The first reports were made by Belloc and Breslow in 1972; at that time, they reported that seven practices were associated with health. In 1980 Breslow and Enstrom reported on the relationship of these practices and subsequent mortality. Men following all seven practices had a mortality rate only 28% that of men following 0-3 practices; the comparable figure for women was 43%. As the longitudinal study continued, two of the seven practices (eating breakfast, eating between meals) were found to be unrelated to health status. The researchers also modified their view of drinking when they found that nondrinkers had poorer health at nine-year follow-up than light drinkers. A new index of health habits included five key health practices predictive of greater longevity: not smoking, consuming no more than 45 drinks per month, exercising several times a week or more, sleeping 7-8 hours per day, and being within -10% and +29% of ideal weight for height (Wiley & Camacho, 1980).

Demographic variables and health

Level of education, employment status, and income must also be considered in a comprehensive model for predicting health status. Franks and Boisseau (1980) found a strong positive relationship between years of schooling and health in their review of literature. Similarly, employment and higher income have been correlated with good health in numerous studies; both physical and mental illnesses tend to be more prevalent among those of lower socioeconomic status (Johnston & Ware, 1976). The feminization of poverty in the U.S. and the higher risk that aging women face of falling into poverty (Rodeheaver & Datan, 1988) mandate societal concern. However, Pratt (1971) found that low-income women with good health habits were not disadvantaged in health status as compared to women of higher socioeconomic status.

Method

This was a descriptive-correlational study of the survey research type. Independent variables were health locus of control, dispositional optimism, modes of anger expression, health habits, stress (defined in terms of daily hassles as well as major life change), education, employment status, income, social support, and menopausal stage. The dependent variable was current health status. Because there was little consensus on the boundaries of the mid-life period, age parameters at initiation of the study in 1982 were defined as 35-55 years. Several writers (Jung, 1971; Sheehy, 1976) have regarded age 35 as a rough indicator of the beginning of the period. Havighurst (1972) defined middle age as the period from "about 30" to "about 60." Stevenson (1977) proposed two stages: Middlescence I, "the core of the middle years" between 30 and 50 years of age; and Middlescence II, "the new middle years" from 50 to roughly 70-75 years. Categorization of menopausal stage was based on subjects' responses to the question, "Have you experienced the menopause (change of life) yet?"

Subjects

Subjects were participants in the third phase of a longitudinal investigation of health in middle adulthood which had its genesis with data collection at two sites: the 1982 World's Fair and a 525-bed metropolitan general hospital in Tennessee. The World's Fair provided access to a sample of mid-life adults who were presumed to be reasonably healthy (i.e., able to travel, ambulatory). Fair visitors completed a battery of self-report questionnaires on-site in the Wellness Station of the University of Tennessee-Knoxville College of Nursing; a poster solicited volunteers for the study and directed them to the data collection area. Data collection at this site yielded 159 usable sets of questionnaires.

Because the researcher sought a sample representative of all stages of the health-illness continuum, data were also collected from hospitalized patients exhibiting a variety of medical and surgical disorders. All nursing units except the obstetric and acute care units of a private, non-profit general hospital were visited regularly during the winter of 1982-83. After consultation with nursing personnel of the units, potential participants were approached and invited to complete the test battery at their convenience. Questionnaire packets were collected by the researcher later in the same day or the next day.

In summary, the aggregated Phase I sample was comprised of 251 individuals in middle adulthood from thirty-two states in the United States of America. Subjects resided in communities of all sizes, ranging from large cities to tiny rural hamlets. Although the majority of participants were Caucasian (96.8%), there was considerable diversity within the sample in terms of education, income, occupation, health status, and other variables of interest. Mean age was 44 years. There were 153 females and 98 males. Of the 251 original participants, 226 elected to provide their addresses to the researcher for continued involvement in the study.

Subsequent assessments of subjects have been made in 1984 and 1987. Phase II testing in 1984 was accomplished through mailed questionnaire packets. Responses were received from 104 subjects (46% response rate); 101 questionnaires were usable. By 1987, correct addresses were no longer available for 28 subjects and one subject was known to be deceased; therefore, there were 197 potential respondents. Of these, 139 men and women participated in Phase III testing (71% response rate). A monetary incentive ($5.00) was provided for the first time in Phase III, which may have influenced response rate.

For the purposes of the present study, female Phase III participants (n = 87) were selected for scrutiny. The diversity of the sample noted in Phase I continued to be evident in terms of education (range 10-22 years), income ($1,680 to $100,000), and health status (full range of scores from poorest to best health). The women now range in age from 39 to 60, with a mean age of 49.4 years. Occupations include sales, business ownership, clerical work and government service, with the preponderance being in human services, K-12 academic positions or homemaking. Sociodemographic characteristics of Phase III female respondents are presented in Table 1.

Instruments

Current health status has been assessed during all phases of the study by the Current Health subscale of the Health Perceptions Questionnaire (Form II); reliability and validity of the scales of the HPQ were established through field testing of over 2,000 adults prior to administration of the instrument to the 8,000 people participating in Rand's Health Insurance Study. One-year test-retest reliability of the HPQ was reported to be .88 (Ware, 1976). The range of possible scores on the Current Health Scale is 9-45; in field testing Ware obtained mean scores ranging from 27.6-32.9. Women were somewhat less likely to report favorable health perceptions than men.

The Health Habits subscale of the Rand Medical History Questionnaire, Form A (Brook et al., 1979), also extensively validated for use in the Rand Study, was used to assess health habits (exercise, sleep, smoking and use of alcohol). Smoking was subsequently operationalized as packyears (number of packs per day X number of years of smoking), and dichotomous dummy variables were created for drinking, exercise and sleep, awarding the point to those subjects who met Wiley and Camacho's (1980) criteria (e.g., drinking no more than 45 drinks per month). Height and weight data were obtained from the demographic form and used to compute body mass index according to the usual formula (kg/cm^2 X 1000).

Locus of control was assessed by the Multidimensional Health Locus of Control Scale (Wallston, Wallston & Devellis (1978); good test-retest reliability, alpha reliabilities (.67 to .77), and concurrent and discriminant validity have been reported (Wallston & Wallston, 1981). The MHLC measures three distinct dimensions of one's beliefs about control: Internality, Chance Externality, and Powerful Others Externality.

Dispositional optimism was measured by the Life Orientation Test (Scheier & Carver, 1985), which exhibited adequate internal consistency (Cronbach's alpha .76) and test-retest reliability (.79). Convergent and discriminant validity were established through factor analyses and correlation of LOT scores with scores on instruments measuring conceptually related constructs.

The Framingham Anger Scales (Haynes et al., 1978), developed for use in the Framingham Study of coronary heart disease, were used to assess modes of anger expression. The scales assess anger-in (anger held in, kept to self), anger-out (anger taken out on others), anger-discuss (anger discussed with friend), and anger symptoms (development of physical symptoms such as headache when angry). Pooled items which had been generated by an expert panel were subjected to item and factor analysis, and Nunnally's formula was used to calculate internal consistency for each scale.

The Hassles Scale, first used in a study of Kaiser Permanente patients, consists of a list of 117 irritating, frustrating demands of daily life. Three scores are calculated: frequency (number of hassles experienced), severity (ratings on scale of 1-3), and intensity (cumulated severity divided by frequency). Test-retest reliabilities ranged from .48 to .79. Hassles scale scores were significantly related to negative affect and psychological symptoms, providing initial evidence of validity (Kanner et al., 1981). At the end of the Hassles Scale subjects are invited to write in changes in their lives (e.g., divorce, moving) that may have affected how they answered the scale; this information was used to create a dichotomous dummy variable "major life change" for the present study.

Norbeck's Social Support Questionnaire (1981) was selected to assess aspects of one's social network such as affect (feeling loved and admired by significant others); affirmation (support of one's actions, thoughts); aid (material help); number in social network; duration of relationships; frequency of contact; and number of losses. Adequate levels of test-retest and internal consistency reliability, and construct, concurrent and predictive validity have been reported (Norbeck, Lindsey & Carrieri, 1983).

Demographic data and information regarding menopausal status and symptoms (if any), diagnosed health conditions, and number of days ill, hospitalizations, doctor visits, surgical procedures, and prescription or over-the-counter medications during the previous year were also obtained, using a questionnaire developed by the researcher.

Analyses

Univariate descriptive statistics for all variables were examined for skewness and the presence of outliers. Plots of each independent variable with the dependent variable current health status were examined for departures from linearity. To examine relationships among the variables, correlational and regression analyses were used. The backward elimination type of stagewise variable selection procedure was selected because it

allows all variables to interact together. An alpha of .05 was used for all procedures of the study except the backward elimination procedure for which a more liberal level of .10 was used due to its exploratory nature.

Results

Correlational analyses

Pearson product-moment correlations of independent variables with current health status are presented in Table 2. Correlates of good health for women in mid-life were optimistic disposition, internal locus of control, education, income, employment outside the home, moderate exercise and sleeping 7-8 hours per night. Variables negatively related to health were stress (measured both in terms of major life change and in terms of frequency and severity of daily hassles), external locus of control beliefs (in particular the belief in control of one's health by powerful others, $r = -.50$, $p < .0001$), packyears of smoking, post-menopausal status and body mass index. Of the anger expression modes, only anger symptomatology (somatization of anger into physical symptoms such as headache) was related to health; there was a significant negative relationship ($r = -.39$, $p < .0002$) between anger symptoms and current health. The anger-in, anger-out, and anger-discuss modes of expressing anger were unrelated to health, as were age and social support variables.

Regression analyses

The final regression model derived from the backward elimination variable selection procedure is presented in Table 3. Significant predictors of mid-life women's current health in the regression analyses were, in order of importance, severity of daily hassles, beliefs that powerful others control one's health, body mass index, major life stress, postmenopausal status, internal locus of control beliefs, and employment outside the home. All were negatively related to health except internal locus and employment. The regression model accounted for 59% of the variance in health status and was significant at the .0001 level ($F = 12.13$).

Additional analyses of stress data

Because stress was highly salient to health status, closer scrutiny of stress variables was in order. The majority of this sample of mid-life women (66%) reported severe daily hassles, and there were statistically significant relationships between hassles frequency and anger symptoms (r = .33, p = .0025) and hassles severity and anger symptoms (r = .31, p = .0047). Item analyses of the Hassles Scale showed that the primary concerns of highly stressed women (those in the top quartile of scores) were "health of a family member" and "troubling thoughts about one's future." Other frequently mentioned items were insufficient time to meet responsibilities and declining energy and physical abilities. The majority (59%) of women scoring high on daily hassles were also experiencing stress in terms of major life change, whereas only 12% of low scorers on daily hassles reported concomitant major life change.

Additional analyses of anger data

The expression of anger through physical symptoms was significantly related to poorer health status in this sample of mid-life women; therefore, this phenomenon and its correlates were examined more closely. Contrary to previous studies, women who exhibited more anger symptoms were not suppressors of their anger; in addition to the somatizing, they also directed anger outward, blaming others and taking their anger out on others. Correlational analyses revealed that anger symptoms were related to loss of an important relationship in the past year and inversely related to several other social support variables (affect, affirmation and aid from significant others). High scorers on anger symptoms were more likely to be married than low scorers, and to hold external locus of control beliefs (beliefs in control by powerful others or by fate or luck). They were less optimistic, less likely to be employed full-time, and more likely to drink alcoholic beverages and to self-medicate with over-the-counter drugs than were low scorers on anger symptoms.

Discussion and Implications

The present study has examined the relative importance of a variety of predictors of health status for women in middle adulthood. Strengths of the study included the diversity of the sample, explanation of a considerable portion (59%) of the variance in health status, and high response rate of subjects. Causal inferences cannot be drawn from this descriptive-correlational study. However, a segment of women in mid-life enjoy less than optimal health while experiencing high levels of stress and expressing anger in ways which may have unfortunate consequences. Further, their external locus of control beliefs may interfere with initiation of self-management strategies which would mitigate anger and stress.

Results of this study indicate that mid-life is stressful for most women, and particularly for those experiencing major life change concomitantly with high frequency of daily hassles. The necessity of assessing both types of stress in future studies is clear, as there appears to be an additive or synergistic effect. The most frequently cited stressors of these women illustrate their dual concerns with their own intrapsychic issues ("troubling thoughts about one's future") and their responsibilities regarding health of family members. The intrafamilial etiology of women's stress has been previously recognized by Kessler and McLeod (1984) and by Mansfield, Preston & Crawford (1988).

Stress management interventions for mid-life women must address the complexity of their concerns rather than presenting simplistic advice regarding relaxation techniques, time management or exercise (although these interventions will be useful in some cases). Because stress and anger were closely related in these women, counselors recommending exercise should point out that its cardiovascular risks are increased when performed in an angry mood (Friedman et al., 1973).

The relationship of anger somatization and health status needs further investigation. Of particular interest is the finding that women who express their anger in physical symptoms also direct it outward rather than suppress it. Neither somatization nor blaming address the precipitants of anger episodes, which are usually interpersonal relationship issues (Averill, 1983); thus, problem-solving is not facilitated. Further, projecting blame on others would logically result in negative consequences for these women (e.g., decreased social support or relationship termination by spouses and significant others who are weary of being blamed). Effective expression of anger must be emphasized when working therapeutically with these women. Julius, Harburg, Cottington and Johnson (1986) view disruptive anger-coping responses as specific stressors which could alter the body's biochemical balance, precipitating disease; thus the anger which may be generated by external stressors becomes in itself a stressor to the body, exacerbating stress.

Social support variables were not useful predictors of health status in the present study, consistent with previous research suggesting that social support may be more salient for men than women. However, inadequate support in terms of affect, affirmation and material aid was associated with anger symptomatology. Additionally, loss of an important relationship within the past year was related to anger symptomatology. Further research is needed.

Across the five years of this longitudinal study, the positive relationship between internal locus of control beliefs and health has remained strongly significant, while external locus of control orientations are negatively related. These findings indicate the importance of self-responsibility for one's health. Arakelian (1980) asserted that the potential for changing an individual's locus of control orientation always exists because new experiences can be introduced that alter previous

patterns of success/failure. Further, motivated individuals are capable of making quite radical changes in their habitual health behaviors. Schachter (1982) found that many laypersons successfully quit smoking or lost significant amounts of weight without the benefit of professional help. Weight loss would appear to be the most important health behavior change indicated by the present study, although sleep, exercise and smoking were also significantly related to health.

As predicted, some factors which are not readily modifiable for mid-life women (e.g., education, income, employment outside the home, postmenopausal status) contribute to the variance in health status. The positive relationships of education, income and employment with health were supportive of previous research. The inverse relationship of postmenopausal status and health was consistent with Engel's (1987) finding. Although it might be suspected that post-menopausal women have poorer health simply because they are older, no relationship between age and health status was found in the present study.

Inclusion of dispositional optimism in future investigations of health appears warranted. Optimism may enable middle-aged women to face the demands of their daily lives with relative equanimity. Optimism was mentioned by Schlossberg (1987) as a component of a "strong sense of self," one of four potential resources which enable individuals to deal with life transitions. Reker and Wong (1985) have termed personal optimism as one of the major psychological variables in successful aging.

There are numerous other implications of this study for health teaching and counseling. The mid-life crisis of finitude may provide impetus for some women to engage in the introspection Jung (1954) recommended for the second half of life. Jung noted that many of his patients eventually acknowledged valuable aspects of their inner selves which had been neglected or repressed. Gaining greater self-awareness and a stronger sense of self-control may be a vital element in improved health and longevity for women.

References

Aday, L. & Eichhorn, R. (1972). The utilization of health services: Indices and correlates. DHEW Publication No. HSM 11-71150. Washington, DC: US Government Printing Office.

Appel, M.S., Holroyd, K., & Gorkin, L. (1983). Anger and the etiology and progression of physical illness. In L. Temoshok, C. Van Dyke, & L. Zegans (eds.) Emotions in health and illness: Theoretical and research foundations. New York: Grune and Stratton.

Arakelian, M. (1980). An assessment and nursing application of the concept of locus of control. Advances in Nursing Science, 3, 25-42.

Averill, J.R. (1983). Studies on anger and aggression: Implications for theories of emotion. American Psychologist, 38, 1145-1160.

Barnett, R.C., Biener, L., & Baruch, G.K. (1987). Gender and stress. New York: The Free Press.

Bayer, L., Whissell-Buechy, D., & Honzik, M.P. (1981). Health in the middle years. In D. Eichorn, J. Clausen, N. Haan, M. Honzik, & P. Mussen (eds.) Present and past in middle life. New York: Academic Press.

Belloc, N.B., & Breslow, L. (1972). Relationship of physical health status and health practices. Preventive Medicine, 1, 409-421.

Berkman, L., & Syme, S. (1979). Social networks, host resistance, and mortality: A nine-year follow-up study of Alameda County residents. American Journal of Epidemiology, 109, 186-204.

Bernardy, R. (1987, Spring). An important new family issue. Gray Panther Network, pp. 4-5, 11.

Blake, R.L., Roberts, C., Mackey, T., & Hosokawa, M. (1980). Social support and utilization of medical care. The Journal of Family Practice, 11, 810-812.

Breslow, L., & Enstrom, J.E. (1980). Persistence of health habits and their relationship to mortality. Preventive Medicine, 9, 469-483.

Brody, E.M. (1982). "Women in the middle" and family help to older people. The Gerontologist, 21, 471-480.

Brook, R.H., Ware, J.E. Jr., Davies-Avery, A., Stewart, A.L., Donald, C.A., Rogers, W.H., Williams, K.N., & Johnston, S.A. (1979). Overview of adult health status measures fielded in Rand's Health Insurance Study. Medical Care, 17 (7), Supplement, 1-131.

Burchfield, S.R., Holmes, T.H., & Harrington, R.L. (1981). Personality differences between sick and rarely sick individuals. Social Science and Medicine, 15E, 145-148.

Cohen, C.I., Teresi, J., & Holmes, D. (1985). Social networks, stress, and physical health: A longitudinal study of an inner-city elderly population. Journal of Gerontology, 40, 478-486.

DeLorey, C. (1984). Health care and mid-life women. In G. Baruch & J. Brooks-Gunn (eds.), Women in mid-life. New York: Plenum Press.

Depner, C. (1981). Exploring competing explanations of role-related differences in health. Paper presented at the meeting of the American Psychological Association, Los Angeles.

Duffy, M.E. (1988). Determinants of health promotion in midlife women. Nursing Research, 37, 358-362.

Engel, N.S. (1987). Menopausal stage, current life change, attitude toward women's roles, and perceived health status. Nursing Research, 36, 353-357.

Erikson, E. (1968). Generativity and ego integrity. In B. Neugarten (ed.), Middle age and aging. Chicago: The University of Chicago Press.

Franks, P., & Boisseau, V. (1980). Educational status and health. The Journal of Family Practice, 10, 1029-1034.

Friedman, M., Manwaring, J.H., Rosenman, R.H., Donlon, G., Ortega, P., & Grube, S.M. (1973). Instantaneous and sudden death: Clinical and pathological differentiation in coronary artery disease. Journal of the American Medical Association, 225, 1319-1328.

Friedman, H.S., & Booth-Kewley, S. (1987). The "disease-prone personality": A meta-analytic view of the construct. American Psychologist, 42, 539-555.

Gilligan, C. (1979). Woman's place in man's life cycle. Harvard Educational Review, 49, 431-446.

Golan, N. (1986). The perilous bridge: Helping clients through mid-life transitions. New York: The Free Press.

Greer, S., & Morris, T. (1975). Psychological attributes of women who develop breast cancer: A controlled study. Journal of Psychosomatic Research, 19, 147-53.

Havighurst, R.J. (1972). Developmental tasks and education. New York: David McKay.

Haynes, S., Levine, S., Scotch, N., Feinleib, M., & Kannel, W.B. (1978). The relationship of psychosocial factors to coronary heart disease in the Framingham Study. I. Methods and risk factors. American Journal of Epidemiology, 107, 362-383.

Haynes, S., Feinleib, M., Levine, S., Scotch, N., & Kannel, W.B. (1978). The relationship of psychosocial factors to coronary heart disease in the Framingham Study. II. Prevalence of coronary heart disease. American Journal of Epidemiology, 107, 384-402.

Haynes, S., Feinleib, M., & Kannel, W.B. (1980). The relationship of psychosocial factors to coronary heart disease in the Framingham Study. III. Eight-year incidence of coronary heart disease. American Journal of Epidemiology, 111, 37-58.

Holmes, T.H., & Rahe, R.H. (1967). The Social Readjustment Rating Scale. Journal of Psychosomatic Research, 11, 213-218.

House, J., Landis, K., & Umberson, D. (1988). Social relationships and health. Science, 241, 540-545.

Johnson, P. (1982). Sex differences, women's roles and alcohol use: Preliminary national data. Journal of Social Issues, 38, 93-116.

Johnston, S.A., & Ware, J.E., Jr. (1976). Income group differences in relationships among survey measures of physical and mental health. Health Services Research, 11, 416-429.

Julius, M., Harburg, E., Cottington, E., & Johnson, E. (1986). Anger coping types, blood pressure and all-cause mortality: A follow-up in Tecumseh, Michigan (1971-1983). American Journal of Epidemiology, 124, 220-233.

Jung, C.G. (1954). The development of personality. Collected works, Vol. 17. New York: Pantheon Books.

Jung, C.G. (1971). The portable Jung. (J. Campbell, ed.) New York: Viking Press.

Kalis, B.L., Harris, R.E., Bennett, C.F., & Sokolow, M. (1961). Personality and life history factors in persons who are potentially hypertensive. Journal of Nervous and Mental Disease, 132, 457-468.

Kanner, A., Coyne, J., Schaefer, C., & Lazarus, R. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. Journal of Behavioral Medicine, 4, 1-39.

Kessler, R.C., & McLeod, J.D. (1984). Sex differences in vulnerability to undesirable life events. American Sociological Review, 46, 443-452.

Lazarus, R., & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer.

Lempert, L. (1986). Women's health from a woman's point of view: A review of the literature. Health Care for Women International, 7, 255-275.

Lerner, H. (1985). The dance of anger. New York: Harper & Row.

MacPherson, K. (1981). Menopause as disease: The social construction of a metaphor. Advances in Nursing Science, 3, 95-113.

Mansfield, P., Preston, D., & Crawford, C. (1988). Rural-urban differences in women's psychological well-being. Health Care for Women International, 9, 289-304.

McElmurry, B., & Zabrocki, E. (1988). The health of older women. In C. Leppa & C. Miller (eds.) Women's health perspectives: An annual review. Phoenix, AZ: The Oryx Press.

Minkler, M. (1986). The social component of health. American Journal of Health Promotion, 1, 33-38.

Nathanson, C. (1977). Sex, illness, and medical care: A review of data, theory and method. Social Science and Medicine, 11, 13-25.

Neugarten, B.L. (1968). The awareness of middle age. In B. Neugarten (ed.) Middle age and aging. Chicago: The University of Chicago Press.

Norbeck, J.S., Lindsey, A.M., & Carrieri, V.L. (1981). The development of an instrument to measure social support. Nursing Research, 30, 264-269.

Norbeck, J.S., Lindsey, A.M., & Carrieri, V.L. (1983). Further development of the Norbeck Social Support Questionnaire. Nursing Research, 32, 4-9.

Novaco, R.W. (1985). Anger and its therapeutic regulation. In M.A. Chesney & R.H. Rosenman (eds.) Anger and hostility in cardiovascular and behavioral disorders. New York: Hemisphere.

Ornstein, R., & Sobel, D. (1987). The healing brain. Psychology Today, 21 (3), 48-52.

Pender, N. J. (1982). Health promotion in nursing practice. Norwalk, CT: Appleton-Century-Crofts.

Public Health Task Force on Women's Health Issues. (1985, January-February). Women's health (Vol. 1). Public Health Reports, 101 (1), 73-106.

Reker, G., & Wong, P. (1985). Personal optimism, physical and mental health. In J.E. Birren & J. Livingston (eds.) Cognition, stress, and aging. Englewood Cliffs, NJ: Prentice-Hall.

Riddick, C. (1985). Life satisfaction for older female homemakers, retirees, and workers. Research on Aging, 7, 383-393.

Rodeheaver, D., & Datan, N. (1988). The challenge of double jeopardy: Toward a mental health agenda for aging women. American Psychologist, 43, 648-654.

Rook, K.S. (1987). Reciprocity of social exchange and social satisfaction among older women. Journal of Personality and Social Psychology, 52, 145-154.

Rossi, A.S. (1980). Aging and parenthood in the middle years. In P.B. Baltes & O.G. Brim, Jr. (eds.) Life-span development and behavior (Vol. 3). New York: Academic Press.

Rotter, J.B. (1954). Social learning and clinical psychology. Englewood Cliffs, NJ: Prentice-Hall.

Schachter, S. (1982). Recidivism and self-cure of smoking and obesity. American Psychologist, 37, 436-444.

Scheier, M., & Carver, C. (1985). Optimism, coping and health: Assessment and implications of generalized outcome expectancies. Health Psychology, 4, 219-247.

Scherwitz, L., Graham, L., & Ornish, D. (1985). Self-involvement and the risk factors for coronary heart disease. Advances, Journal of the Institute for the Advancement of Health, 2, 6-18.

Schlossberg, N.K. (1987). Taking the mystery out of change. Psychology Today, 21 (5), 74-75.

Sheehy, G. (1976). Passages: Predictable crises of adult life. New York: Dutton.

Stevenson, J.S. (1977). Issues and crises during middlescence. New York: Appleton-Century-Crofts.

Strickland, B.R. (1978). Internal-external expectancies and health-related behaviors. Journal of Consulting and Clinical Psychology, 46, 1192-1211.

Tavris, C. (1982). Anger: The misunderstood emotion. New York: Simon & Schuster.

Turkington, C. (1985, February). What price friendship? The darker side of social networks. American Psychological Association Monitor, 16, 38, 41.

Verbrugge, L.M. (1985). Gender and health: An update on hypotheses and evidence. Journal of Health and Social Behavior, 26, 156-182.

Wallston, B.S., & Wallston, K.A. (1978). Locus of control and health: A review of the literature. Health Education Monographs, 6, 107-117.

Wallston, K.A., Wallston, B.S., & DeVellis, R. (1978). Development of the Multidimensional Health Locus of Control (MHLC) Scales. Health Education Monographs, 6, 160-170.

Wallston, K.A., & Wallston, B.S. (1981). Health locus of control scales. In H. Lefcourt (ed.) Research with the locus of control construct (Vol. 1). New York: Academic Press.

Ware, J.E. Jr. (1976). Scales for measuring general health perceptions. Health Services Research, 11, 396-415.

Williams, R.B. Jr., Barefoot, J.C., & Shekelle, R.B. (1985). In M.A. Chesney & R.H. Rosenman (eds.), Anger and hostility in cardiovascular and behavioral disorders. New York: Hemisphere.

Wilsnack, R. (1984). Women's drinking and drinking problems: Patterns from a 1981 national survey. American Journal of Public Health, 74, 1231-1237.

Wiley, J.A., & Camacho, T.C. (1980). Life-style and future health: Evidence from the Alameda County study. Preventive Medicine, 9, 1-21.

TABLE 1. PERCENTAGE DISTRIBUTION OF SOCIODEMOGRAPHIC VARIABLES IN A SAMPLE OF MID-LIFE WOMEN

VARIABLE	N	%
MARITAL STATUS		
Never married	8	9.2
Married	69	79.3
Divorced/separated	7	8.0
Widowed	3	3.4
EMPLOYMENT STATUS		
Not presently employed	22	25.3
Employed full-time	50	57.5
Employed part-time	15	17.2
LEVEL OF RELIGIOUS INVOLVEMENT		
None, no belief in higher power	3	3.4
Belief in higher power, no church involvement	14	16.1
Belief in higher power, some church involvement	18	20.7
Belief in higher power, regular church involvement	52	59.8
OCCUPATION		
Professional Practice	2	2.3
Owner of Business	6	7.0
Clerical	6	7.0
Academic Position, College	5	5.8
Academic Position, K-12	11	12.8
Human Service	13	15.1
Sales	6	7.0
Technical/Engineering	1	1.2
Management, Planning	1	1.2
Finance, Banking	1	1.2
Government Service	5	5.8
Homemaking	14	16.3
Transportation	1	1.2
Labor	4	4.7
Retired	3	3.5
Disabled	2	2.3
Other	5	5.8

TABLE 2. ZERO-ORDER CORRELATIONS OF VARIABLES WITH CURRENT HEALTH FOR A SAMPLE OF MID-LIFE WOMEN

VARIABLE	r	p
POWERFUL OTHERS LOCUS OF CONTROL	-.50	.0001
HASSLES SEVERITY	-.49	.0001
BODY MASS INDEX	-.44	.0001
ANGER SYMPTOMS	-.39	.0002
INCOME	.39	.0005
HASSLES FREQUENCY	-.38	.0004
EMPLOYMENT OUTSIDE HOME	.37	.0005
EDUCATION	.33	.0016
INTERNAL LOCUS OF CONTROL	.32	.0023
OPTIMISTIC DISPOSITION	.30	.0045
SLEEPING 7-8 HRS./NIGHT	.30	.0055
MAJOR LIFE STRESS	-.26	.0157
CHANCE LOCUS OF CONTROL	-.24	.0235
POSTMENOPAUSAL STATUS	-.23	.0366
MODERATE EXERCISE	.23	.0379
PACKYEARS OF SMOKING	-.22	.0467

TABLE 3. REGRESSION MODEL FOR DEPENDENT VARIABLE CURRENT HEALTH FOR A SAMPLE OF MID-LIFE WOMEN

VARIABLE	b	B	F	Prob. F
HASSLES SEVERITY	-0.1247	-0.3729	14.72	.0003
POWERFUL OTHERS LOCUS	-0.4559	-0.2504	8.61	.0047
BODY MASS INDEX	-5.2563	-0.2283	7.85	.0068
MAJOR LIFE STRESS	-3.5659	-0.1727	4.20	.0449
POSTMENOPAUSAL STATUS	-3.4452	-0.1684	4.16	.0458
INTERNAL LOCUS	0.3952	0.1930	4.11	.0472
EMPLOYMENT OUTSIDE HOME	3.6183	0.1546	3.11	.0829

NOTE: b = unstandardized regression coefficients

B = standardized regression coefficients